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AN AGE-GRADE STUDY OF 7,632 ELEMENTARY PUPILS IN 45 CONSOLIDATED SCHOOLS

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Many problems in school administration during recent years have directed attention to the large amount of pupil retardation. Failure of pupils to progress regularly through school and retardation due to any cause are factors in the cost of education, attendance, and in the accurate accounting of pupils. Consequently statistics showing pupil placement in and progress through school with relevant data are essential to the successful administration of a modern school system. Studies showing age-grade distribution of pupils in urban schools are rather common. Comparable data from rural schools are not so prevalent. The study was undertaken in order to make available data from representative rural schools of the modern type comparable to those already available in reports of similar studies of urban school pupils.

This pamphlet presents an age-grade distribution of 7,632 pupils in the elementary grades of 45 consolidated schools. These schools were selected at random from lists submitted by State departments of education and are the ones replying to questionnaires on age-grade distribution sent from this office in 1927–28. The schools are located in 24 States representing all sections of the country. The median school of the group enrolled 250 pupils.

Numbers and percentages under age, normal age, and over age, numbers and percentages repeating and skipping grades, and numbers and percentages with physical defects are shown. Age of pupils is considered as that of their nearest birthday upon entering school in September. Each grade represents a year of school work. The grades are not divided into half-year classes.

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Some comparisons are made between the percentages of pupils under age, normal age, and over age in the rural schools and those of pupils in city schools.

Age-Grade Distribution

Table 1 gives an age-grade distribution of all pupils involved in the study. This table is followed by a tabulation of the computed percentages of under-age, normal-age, and over-age pupils in each grade and in all grades. The largest number, or 14.8 per cent, of pupils enrolled in any one grade is in grade 1 and the smallest number, or 7.6 per cent, in grade 8. However, since several schools do not maintain all of the upper grades, the data in columns showing enrollment by grades are an indication of central tendencies with respect to caring for pupils of various grade levels in these schools, rather than an accurate measure of pupil mortality in them.

TABLE 1.—*Age-grade distribution of 7,632*[1] *pupils in the elementary grades of 45 consolidated schools*

Grade	Age																Total	Average age	Per cent of pupils in grade
	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	34	252	561	200	54	20	7	1									1,129	6.1	14.8
2		11	216	452	225	74	21	8	2	1							1,010	7.2	13.2
3			9	218	452	227	95	27	8	6							1,042	8.3	13.6
4				18	192	450	228	126	38	21	6	2		1			1,082	9.5	14.3
5					16	193	379	261	127	38	18	3			2		1,037	10.5	13.6
6						19	153	294	242	98	52	22	5				885	11.9	11.6
7							31	144	296	217	124	34	11	2	2		861	12.5	11.3
8								16	104	200	160	76	25	3	1	1	586	13.5	7.6
Total	34	263	786	888	939	983	914	877	817	581	360	137	41	6	5	1	7,632		

[1] Pupils 6 or 7 years of age (nearest their sixth or seventh birthdays upon entering school September, 1927) were considered as of normal age for grade 1, those 7 or 8 years of age as normal for grade 2, and so on. These norms have been used in a number of comparable studies. For example, see U. S. Office of Education Statistical Circular No. 8 and an Age-Grade Study of 352,692 Elementary and High School Pupils in Massachusetts.

TABLE 2.—*Percentage of pupils under age, normal age, and over age in the elementary grades of 45 consolidated schools*

Grade	Under age	Normal age	Over age	Grade	Under age	Normal age	Over age
1	2	3	4	1	2	3	4
1	25.3	67.4	7.3	6	19.4	60.6	20.0
2	22.5	67.0	10.5	7	20.3	59.6	20.1
3	21.8	65.2	13.0	8	20.5	61.4	18.1
4	19.4	62.7	17.9				
5	20.2	61.7	18.1	All grades	21.3	63.5	15.2

The following table gives the per cent of pupils under age, normal age, and over age for each of the light elementary grades in the 45 consolidated schools and in 56 city school systems in various parts of the country reporting to this office at the same time data were collected from the consolidated schools.

TABLE 3.—*Percentage of pupils under age, normal age, and over age, by grades, in 45 consolidated schools and in 56 city school systems*

Grade	School	Under age	Normal age	Over age
1	2	3	4	5
1	Consolidated	25.3	67.4	7.3
	City	25.7	68.6	5.7
2	Consolidated	22.5	67.0	10.5
	City	21.4	69.5	9.1
3	Consolidated	21.8	65.2	13.0
	City	17.7	70.5	11.8
4	Consolidated	19.4	62.7	17.9
	City	17.6	67.0	15.4
5	Consolidated	20.2	61.7	18.1
	City	16.7	64.1	19.2
6	Consolidated	19.4	60.6	20.0
	City	17.2	62.7	20.1
7	Consolidated	20.3	59.6	20.1
	City	18.6	65.2	16.2
8	Consolidated	20.5	61.4	18.1
	City	21.8	65.3	12.9
All grades	Consolidated	21.3	63.5	15.2
	City	19.7	66.9	13.4

The largest per cent of over-age pupils in the city schools is in the sixth grade, reaching 20.1 per cent; while in the consolidated schools the largest per cent is in the seventh grade, exactly the same per cent as that reached by the city schools in the sixth grade. It will be seen that there is a larger per cent of over-age pupils in all grades of the consolidated schools, except the fifth and sixth, than there is in the city schools; the total for all grades is approximately 2 per cent larger in the consolidated schools than in the city schools.

In the consolidated schools the pupils range in age from 4 to 19 years and the middle 50 per cent from 7 to 11 years. The average age of the group is 9.5 years. The highest enrollment by age is in

the 9-year-old group; 297 pupils are less than 6 years of age and 190 are over 14. Twenty-one and three-tenths per cent of all the pupils are under age, 63.5 per cent are normal age, and 15.2 per cent are over age. The largest percentages under age and normal age are in grade 1 and the largest percentage over age is in grade 7.

FIG. 1.

Figure 1 shows the distribution of pupils according to grade From the largest number in the first to the smallest in the eighth grade the enrollment fluctuates in an interesting manner.

The loss appearing in the second grade is partially regained in the third and fourth grades. From this point the loss in enrollment is constant but irregular. A decided reduction occurs between the fifth and sixth grades and again between the seventh and eighth.

TABLE 4.—*Age-grade distribution of pupils by sex*

BOYS

Grade	Ages															Total	Average age	Per cent of pupils in grade
	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1	12	118	292	121	37	13	6	1								600	6.2	15.4
2		8	102	219	135	38	11	5	2							520	7.3	13.4
3			4	110	218	131	62	14	4	4						547	8.4	14.1
4				7	81	185	107	73	25	14	5	2				499	9.7	12.9
5					5	90	177	134	77	27	10	2				522	10.6	13.4
6						7	67	153	132	39	35	15	1			449	11.7	11.6
7							14	63	148	129	76	22	5	1		458	12.6	11.8
8								6	52	88	82	44	13	3	1	289	13.6	7.4
Total	12	126	398	457	476	464	444	449	440	301	208	85	19	4	1	3,884		

GIRLS

Grade	Ages																Total	Average age	Per cent of pupils in grade
	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	22	134	269	79	17	7	1										529	5.9	14.1
2		3	114	233	90	36	10	3		1							490	7.2	13.1
3			5	108	234	96	33	13	4	2							495	8.2	13.2
4				11	111	265	121	53	13	7	1			1			583	9.1	15.6
5					11	103	202	127	50	11	8	1			2		515	10.3	13.7
6						12	86	141	110	59	17	7	4				436	11.5	11.6
7							17	81	148	88	48	12	6	1	2		403	12.3	10.8
8								10	52	112	78	32	12			1	297	13.3	7.9
Total	22	137	388	431	463	519	470	428	377	280	152	52	22	2	4	1	3,748		

Table 4 gives age-grade distributions of the same pupils included in Table 1 by sex. The largest number of boys in any one grade, or 15.4 per cent, is in grade 1, whereas the largest number of girls, or 15.6 per cent, is in grade 4. The smallest number of each group in any one grade, less than 8 per cent, is in grade 8. The ages range from 4 years for both groups to 18 years for boys and 19 years for girls. The range in age of the middle 50 per cent is from 7 to 12 years for boys and from 7 to 11 years for girls. The average ages are 9.7 years for boys and 9.1 years for girls.

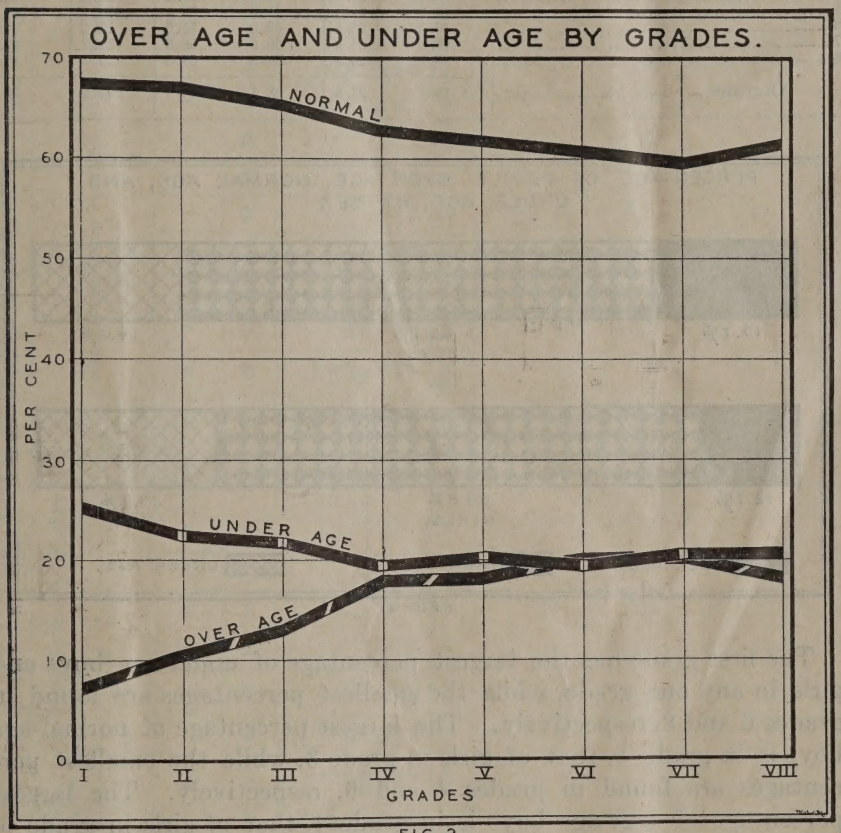

FIG. 2.

The percentage of over-age pupils, those of normal age, and those under age in each grade are shown in Figure 2.

It will be seen that the per cent of over-age pupils decreases from the first grade through the fourth, increases in the fifth grade, drops in the sixth, but increases again in both upper grades. The per cent of normal-age pupils decreases constantly and rather regularly through the first seven grades, but increases in grade 8; conversely the per cent of under-age pupils increases through the first seven grades, but decreases in grade 8.

TABLE 5.—*Percentage of pupils under age, normal age, and over age, by sex, in 45 consolidated schools*

Grade	Under age		Normal age		Over age	
	Boys	Girls	Boys	Girls	Boys	Girls
1	2	3	4	5	6	7
1	21.7	29.5	68.8	65.8	9.5	4.7
2	21.2	23.9	68.1	65.9	10.7	10.2
3	20.8	22.8	63.8	66.7	15.4	10.5
4	17.6	20.9	58.5	66.2	23.9	12.9
5	18.2	22.1	59.6	63.9	22.2	14.0
6	16.5	22.5	63.3	57.6	20.2	19.9
7	16.8	24.3	60.5	58.6	22.7	17.1
8	20.1	20.8	58.8	64.0	21.1	15.2
All grades	19.2	23.5	63.1	63.8	17.7	12.7

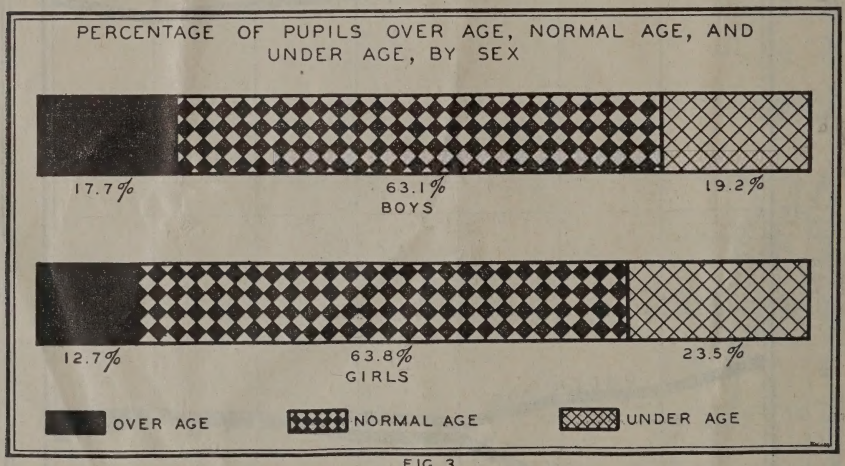

FIG. 3.

The first grade has the largest percentage of under-age boys and girls in any one grade, while the smallest percentages are found in grades 6 and 8, respectively. The largest percentage of normal-age boys is in grade 1, that of girls in grade 3, while the smallest percentages are found in grades 4 and 6, respectively. The largest percentage of over-age boys is in grade 4, that of girls in grade 6, while the smallest percentages of both are found in grade 1.

Larger percentages of girls than of boys are under age and of normal age, but the reverse is true for those over age. This is shown graphically in Figure 3. Physical conditions of pupils, set forth on following pages, may indicate but do not show conclusively why the percentage of over-age boys is greater than that of girls. Another cause sometimes mentioned is that boys are kept out of rural schools to do farm work to a greater extent than are girls.

TABLE 6.—*Progress of pupils from grades 1 to 8*

Grade	(A) Number of pupils according to time spent in school, including the present year (1926-27)													(B) Number of repetitions by grades								(C) Number of skips by grades							(D) Number of pupils repeating a grade a given number of times		
	Year																														
	1	2	3	4	5	6	7	8	9	10	11	12	Total	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	Once	Twice	Three times
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
1	869	230	27	3									1,129	293															230	27	3
2	9	743	221	29	7	1							1,010	235	107							9							279	24	5
3	3	23	714	223	60	15	4						1,042	185	142	78						12	17	2					360	18	3
4		3	55	688	253	57	23	2	1				1,082	146	112	106	91					26	26	18					406	17	5
5			6	76	593	270	80	11	1				1,037	130	101	89	88	69				43	34	17	7				459	9	
6				7	59	490	267	44	17	1			885	115	68	73	92	80	63	1		22	34	15	17	3			458	17	
7					5	87	467	244	49	7	1	1	861	100	66	53	69	34	34	40		40	38	19	9	14	5		366	15	
8					1	6	66	300	173	34	6		586	55	35	27	34	37	23	47	14	17	28	10	10	13	12	4	246	10	2
Total	881	999	1,023	1,026	978	926	907	601	241	42	7	1	7,632	1,259	631	426	374	220	120	88	14	169	177	81	43	30	17	4	2,804	137	18

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Retardation and Acceleration of Pupils

Table 6 shows the number of years, including the present, that 7,632 pupils in the various elementary grades of the 45 consolidated schools have spent in school, the number of repetitions and skips by grades, and the number of pupils repeating the various grades a given number of times. Since pupils should progress through school normally at the rate of one grade per year, data such as those presented here fairly indicate the success or failure of the school in meeting the pupils' needs. An inspection of the data by grades reveals the place or places in the course which are in the greatest need of attention.

Years spent in school.—Reading the figures in section A opposite grade 1, we find that 869 first-grade pupils are spending their first year in school, that 230 are spending their second year, 27 their third year, and 3 others their fourth year. This makes 293 repetitions among the 1,129 first-grade pupils. In other words, approximately 25 per cent of the pupils entering these 45 schools require not one, but two or more years for the completion of first-grade work.

Pupils repeating grades.—The per cent of pupils (see section B) enrolled in the various grades who have repeated increases up to the sixth grade; here we find that more than 50 per cent have repeated some work. There is a material lowering in the seventh and eighth grades from that in the sixth. Approximately 42 per cent of the time spent in school by the entire group is due to repetition. The column footings show that the greatest number of repetitions occurred in grade 1; approximately one-half as many in grade 2; and from this point there is a gradual reduction in the number of repetitions in the successive grades. The fact that the survival list grows smaller accounts in part for the reduction in number of repetitions in the upper grades, but not entirely; for we find reading across, as already mentioned, the percentage of repetition increasing among those who survive.

Many educators recommend that the course of study, the curriculum, and the instruction should be so well adapted to pupils' needs as to eliminate failure. This is a fine ideal, but probably difficult of realization. Such hindering factors as short terms and poor attendance may effectively prevent regular school progress. But certainly there must be something radically wrong when nearly one-half of the pupils are required to repeat a year's work.

Pupils skipping grades.—The tabulating in section C indicates a much smaller per cent of skipping than of repeating among the entire group. Beginning with 9 pupils enrolled in grade 2 who have skipped the first grade, the number increases gradually up to the eighth, where we find that approximately 16 per cent have skipped grades.

Grades 1 and 2 (see column footings) have the greatest numbers of pupils skipping; the third grade has approximately one-half as many as either of the first two; the fourth about one-half as many as the third; and from there on we see a gradual decrease.

Pupils repeating grades once, twice, and three times.—Section D of the table is another expression of the amount of repetition among the several grades. We find that the number of pupils repeating any grade once is greater than the combined number of those repeating two and three times. Totaling the summaries and converting these to years of school work repeated reveals the amazing fact that the 7,632 pupils enrolled in the eight grades have taken 3,132 years of school work more than once.

TABLE 7.—*Progress of pupils by grades, by sex*

BOYS

Grade	(A) Number of pupils arranged according to time spent in school, including the present year													(B) Number of repetitions by grades								(C) Number of skips by grades							(D) Number of pupils repeating a grade a given number of times		
	1	2	3	4	5	6	7	8	9	10	11	13	Total	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	Once	Twice	Three times
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
1	448	131	18	3									600	176															131	18	3
2	7	362	138	10	2	1							520	134	73							7							176	14	1
3		10	349	136	42	7	3						547	113	86	56						4	6	2					232	10	1
4		2	20	286	138	35	16	1	1				499	89	61	64	52					13	9	8					230	12	4
5			3	25	272	160	52	9	1				522	80	68	61	61	32				15	13	8	3				286	8	
6				5	31	240	139	23	10	1			449	68	33	40	61	56	34	1		11	18	11	10	2			277	8	
7					1	40	226	151	36	4			458	60	38	37	45	16	25	27		10	25	11	4	6	3		234	7	
8						1	32	138	91	23	4		289	34	19	14	19	21	16	28	9	9	12	3	6	6	7	2	142	6	2
Total	455	505	528	465	486	484	468	322	139	28	4		3,884	754	378	272	238	125	75	56	9	69	83	43	23	14	10	2	1,708	83	11

GIRLS

1	421	99	9										529	117															99	9	
2	2	381	83	19	5								490	101	34							2							103	10	4
3	3	13	365	87	18	8	1						495	72	56	22						8	11						128	8	2
4		1	35	402	115	22	7	1					583	57	51	42	39					13	17	10					176	5	1
5			3	51	321	110	28	2					515	50	33	28	27	37				28	21	9	4				173	1	
6				2	28	250	128	21	7				436	47	35	33	31	24	29			11	16	4	7	1			181	9	
7					4	47	241	93	13	3	1	1	403	40	28	16	24	18	9	13		30	13	8	5	8	2		132	8	
8					1	5	34	162	82	11	2		297	21	16	13	15	16	7	19	5	8	16	7	4	7	5	2	104	4	
Total	426	494	495	561	492	442	439	279	102	14	3	1	3,748	505	253	154	136	95	45	32	5	100	94	38	20	16	7	2	1,096	54	7

Table 7 is a presentation of the data shown in Table 5, but is given separately for boys and girls. We find retardation is considerably greater for the boys than for the girls; consequently over age is more prevalent among the boys. The percentage of boys who have skipped grades is approximately 6 per cent of the number enrolled, whereas for girls it is approximately 7 per cent. The number of boys repeating work once, twice, and three times is greater in each case than for girls.

Table 8 shows a large number of 4 and 5 year old pupils in grade 1. Most of these, as shown by section B, are spending their first year in school and may not make grade 2 their second year. However, judging by the number of accelerated pupils of ages 6, 7, 8, 9, 10, 11, and 12, as shown in section A, it might be assumed that a large percentage of those entering the first grade before they are 6 years of age will not repeat. But the large number of 6-year-olds, as shown by section B, who are spending their second year in school seems to indicate that a large percentage of under-age first-grade pupils do repeat.

The largest per cent of over-age pupils is found among the 10-year-olds, while the smallest per cent is among the 7-year-olds. Pupils 14 or more years of age (those over normal age for grade 8) constitute approximately 7 per cent of the entire enrollment.

TABLE 8.—*Progress of pupils according to age*

Age last birthday	(A) Number of pupils enrolled in school by grades									(B) Number of pupils by years, according to time spent in school, including the present year												
	1	2	3	4	5	6	7	8	Total	1	2	3	4	5	6	7	8	9	10	11	13	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
4	34								34	33	1											34
5	252	11							263	238	25											263
6	561	216	9						786	502	268	16										786
7	200	452	218	18					888	90	514	269	15									888
8	54	225	452	192	16				939	11	145	553	220	10								939
9	20	74	227	450	193	19			983	4	41	140	568	215	15							983
10	7	21	95	228	379	153	31		914	2	3	34	172	494	195	14						914
11	1	8	27	126	261	294	144	16	877	1	1	8	41	195	428	198	5					877
12		2	8	38	127	242	296	104	817			1	5	47	209	427	127	1				817
13		1	6	21	38	98	217	200	581			2	2	10	61	188	274	43		1		581
14				6	18	52	124	160	360		1		2	3	15	65	148	110	16			360
15				2	3	22	34	76	137				1	2	1	14	34	67	18			137
16					5	11	25	41							1	1	10	17	7	5		41
17				1			2	3	6						1		1	2	1	1		6
18					2		2	1	5					2			2				1	5
19								1	1									1				1
20																						
Total	1,129	1,010	1,042	1,082	1,037	885	861	586	7,632	881	999	1,023	1,026	978	926	907	601	241	42	7	1	7,632

Age last birthday	(C) Number of pupils repeating by grades									(D) Number of pupils skipping by grades								(E) Number of pupils repeating any grade			
	1	2	3	4	5	6	7	8	Total	1	2	3	4	5	6	7	Total	Once	Twice	Three times	Total
	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
4	1								1									1			1
5	14								14									14			14
6	76								76	7	3						10	76			76
7	173	10							183	12	12	2					26	169	7		183
8	165	56	9						230	18	21	10					49	196	17		230
9	179	111	32	15	2				339	34	25	16	9	1			85	295	16	4	339
10	164	94	57	25	5		1		346	28	28	13	14	5			88	301	18	3	346
11	162	100	80	64	27	5	1		439	24	23	18	8	7	6	2	88	411	11	2	439
12	109	89	87	77	54	26	5		447	29	30	11	6	8	7	2	93	412	13	3	447
13	105	72	85	86	49	31	15	1	444	8	18	7	3	6	4		46	405	15	3	444
14	80	58	45	58	45	24	34	6	350	7	9	4	3	3			26	321	13	1	350
15	16	33	18	33	26	24	25	6	181	2	8						10	151	15		181
16	14	7	11	8	10	6	7		63									46	7	1	63
17	1	1	2	5		1		1	11									4	2	1	11
18				2	2	3			7									1	3		7
19				1					1									1			1
20																					
Total	1,259	631	426	374	220	120	88	14	3,132	169	177	81	43	30	17	4	521	2,804	137	18	3,132

TABLE 9.—*Retardation in relation to physical condition*

BOYS

Age	Number of pupils	Per cent of retardation	Teeth				Eyesight				Hearing				Speech				Posture			
			Some decayed		None decayed		Interferes with school work		Does not interfere with school work		Interferes with school work		Does not interfere with school work		Interferes with school work		Does not interfere with school work		Interferes with school work		Does not interfere with school work	
			Number of pupils	Per cent of retardation	Number of pupils	Per cent of retardation	Number of pupils	Per cent of retardation	Number of pupils	Per cent of retardation	Number of pupils	Per cent of retardation	Number of pupils	Per cent of retardation	Number of pupils	Per cent of retardation	Number of pupils	Per cent of retardation	Number of pupils	Per cent of retardation	Number of pupils	Per cent of retardation
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
4	7	0	7	0	0	0	-------	-------	7	0	-------	-------	7	0	-------	-------	7	0	1	0	6	0
5	79	1	60	1	19	0	1	0	78	1	-------	-------	79	1	4	0	75	1	2	0	77	1
6	257	10	188	8	69	14	12	16	245	9	5	0	252	10	15	20	242	9	24	4	233	10
7	270	26	182	30	88	17	6	50	264	22	2	100	268	26	19	47	251	25	27	37	243	25
8	280	29	195	26	85	34	22	22	258	29	6	16	274	29	14	28	266	25	32	46	248	27
9	321	41	214	35	107	53	32	37	289	41	13	30	308	41	19	47	302	40	51	47	270	40
10	299	47	189	44	110	50	28	42	271	47	3	66	296	47	14	42	285	47	43	62	256	44
11	283	55	175	62	108	61	29	51	254	63	7	100	276	61	6	50	277	62	28	82	255	60
12	239	76	139	76	100	75	38	180	201	72	10	80	229	76	6	150	233	74	29	86	210	74
13	169	91	111	92	58	89	24	112	145	87	5	120	164	90	8	112	161	90	18	161	151	82
14	111	116	64	121	47	108	16	112	95	116	2	150	109	115	7	171	104	112	14	157	97	110
15	47	140	31	141	16	137	7	128	40	142	2	100	45	142	2	150	45	140	7	214	40	127
16	8	188	6	183	2	200	1	300	7	171	1	-------	7	213	-------	-------	8	187	1	-------	7	214
17	1	200	-------	-------	1	200	-------	-------	1	200	-------	-------	1	200	-------	-------	1	200	-------	-------	1	200
18	1	-------	1	0	-------	-------	-------	-------	1	-------	-------	-------	1	-------	-------	-------	1	0	-------	-------	1	0
Total	2,372	50	1,562	47	810	54	216	66	2,156	48	56	63	2,316	49	114	59	2,258	49	277	69	2,095	47

4	18	5	14	6	4	0	------	------	18	5	------	------	18	5	------	------	18	5	1	0	17	5
5	87	4	58	6	29	0	------	------	87	4	------	------	87	4	3	0	84	4	3	0	84	4
6	230	9	169	7	61	14	7	28	223	8	3	0	227	9	12	16	218	8	19	21	211	8
7	279	15	185	17	94	12	10	20	269	15	------	------	279	15	9	44	270	14	15	20	264	15
8	311	16	203	15	108	17	19	26	292	15	13	7	298	16	6	16	305	16	16	31	295	15
9	317	24	218	24	99	32	26	34	291	26	4	25	313	24	9	77	308	25	24	41	293	26
10	294	28	185	20	109	26	30	30	264	20	5	0	289	29	7	71	287	27	21	42	273	27
11	269	44	153	46	116	43	25	44	244	45	2	0	267	45	2	0	267	45	24	66	245	42
12	191	55	109	61	82	47	31	74	160	51	4	25	187	55	7	100	184	59	30	76	161	51
13	150	64	84	71	66	56	20	85	130	61	8	112	88	1	1	0	149	65	22	100	128	58
14	74	91	46	80	28	110	9	100	65	90	------	------	68	4	3	66	71	92	9	166	65	81
15	28	110	13	115	15	106	5	100	23	112	------	------	31	0	------	------	28	110	3	66	25	116
16	11	363	8	137	3	100	2	5	9	144	------	------	14	14	2	200	9	111	4	175	7	100
17	1	200	------	------	1	200	------	------	1	200	------	------	2	0	------	------	1	200	------	------	1	200
18	2	0	2	------	------	------	------	------	2	------	------	------	------	------	------	------	2	0	2	0	------	------
19	1	100	------	------	1	100	------	------	1	100	------	------	1	0	------	------	1	100	------	------	1	100
Total	2,263	32	1,447	31	816	34	184	51	2,079	31	39	31	2,224	32	61	53	2,202	32	193	60	2,070	30

In section C we find the number of repetitions among the various age groups increasing rapidly up to age 12. From this age the actual number repeating decreases, but compared to the enrollment the per cent repeating continues to increase through the higher-age groups. As with repetitions we find (see section D) the amount of skipping among grades increasing up to age 12. The amount of skipping among 13-year-olds is less than half as great as that among 12-year-olds. Few of the older pupils in schools have skipped grades, whereas the opposite is true concerning the number repeating grades.

Retardation and Physique of Pupils

Table 9 shows the amount of retardation among 2,372 boys and 2,263 girls in the elementary grades in relation to certain physical conditions. These relate to the teeth, eyesight, hearing, speech, and posture. The data for this section were obtained from reports of physical examinations. Instructors were requested to answer questions only when such reports were available.

Teeth.—The per cent of retardation in this tabulation was determined by using the number of times pupils were retarded (amounting in some instances to two or more times for a single pupil) as the dividend and the number of pupils as the divisor. It will be seen that for the boys it is 50 per cent and for the girls 32 per cent.

The numbers involved are probably too small to be of great significance, but we find some interesting facts in the table. Sixty-six per cent of all boys and 61 per cent of all girls have decayed teeth. Pupils, both boys and girls, with the greatest number of decayed teeth are in age groups 5, 6, 15, and 16, the average per pupil being approximately 4. The average number of decayed teeth for the boys of all ages is approximately 3 and for the girls approximately 2.

The data reveal the fact that while there is more retardation among both the boys and the girls of certain ages who have decayed teeth than there is among those who do not have, for each group as a whole the opposite is true. The difference amounts to 15 per cent for the boys and 10 per cent for the girls. No data were collected as to the number of missing teeth.

Eyesight.—The eyesight of 9 per cent of the boys and 8 per cent of the girls interferes with their school work. Among these pupils, both boys and girls, retardation is greater than among the ones with better eyesight. The percentages of retardation are as follows: For boys, 66 and 48, and for girls, 51 and 31.

Hearing.—The hearing of 2.4 per cent of the boys and 1.7 per cent of the girls is deficient enough to interfere with their school work. Retardation is greater among the boys with defective hearing than among the group with good hearing; among the two groups of girls

there is very little difference and this is in favor of the ones with defective hearing.

Speech.—Judging by the tabulation, defective speech—i. e., defective to the extent of interfering with school work—seems to be a cause of retardation. Among the boys and the girls with defective speech retardation amounts to 59 per cent and 53 per cent, respectively, while the corresponding percentages among those without such defects are 49 and 32. Approximately 5 per cent of the boys and approximately 3 per cent of the girls have speech defects of the kind mentioned.

Posture.—Bad posture is attributed to 11.7 per cent of the boys and to 8.2 per cent of the girls. The percentage of retardation among the boys with bad posture is 69 and among the girls it is 60, while the corresponding percentages for those with good posture are 47 and 30, respectively. Possibly some of the poor posture of the retarded pupils may be due in part to the depression which goes with the retardation.

Conclusions

A large number of pupils of both sexes enter school before the age of 6. This results in a high percentage of under age in grade 1. As these pupils progress through school many of them repeat grades and the percentage under age gradually decreases. On the other hand, the percentage of over-age pupils tends to increase through the grades.

The percentage of pupils over age in six grades of the 45 rural schools is considerably larger than the percentage over age in 56 city schools reporting on age grade of pupils at the time data were collected for this study; in the other two grades the percentage of over-age pupils is slightly larger in the city schools.

An age-grade study of 352,692 elementary and high school pupils in Massachusetts in 1926 shows 26.1 per cent of the pupils under age, 61.9 per cent normal age, and 12 per cent over age as compared to the 21.3 per cent under-age, 63.5 per cent normal-age, and 15.2 per cent over-age pupils in the present study.

There are larger percentages of under-age and of normal-age girls but a smaller percentage over age than of boys. Judging from the findings in this study girls in large rural schools progress through school more rapidly than boys. There is little, if any, evidence here to show that those who survive through the upper elemetary grades progress at a more satisfactory rate than do those of the less-selected groups of the lower elementary grades.

The results shown here indicate that, in general, pupils in good physical condition progress more satisfactorily through school than do those with physical defects. While it might be assumed that pupils handicapped physically are retarded in the average consolidated

school as now organized, it is a lamentable fact that from 30 to 50 per cent of all pupils enrolled in these modern schools are required to repeat grades during their elementary course. There seems to be no valid reason why this condition should continue, but a number of good ones why no effort should be spared to improve the situation. We mention a few: First, the extra cost attributable to a pupil's slow progress through school; second, increasing attendance, which makes a constantly greater demand on the capacity of the educational facilities; third, and most important, is the welfare of the child.

Such factors as those mentioned are serving to direct more and more attention to the problem of curriculum adjustment and pupil progress through school. When the administration of attendance and the educational program function adequately it will no longer be necessary to retard pupils. When that time comes significant means of reducing the per capita cost of education and of making the educational process a natural period of growth for all children will have been found.

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